CLAIMS

1. A semiconductor light emitting device, comprising:

a substrate;

a first conductive type first cladding layer formed on said substrate;

an active layer formed on said first cladding layer; and

a second conductive type second cladding layer formed on said active layer, a part thereof having a ridge-shaped portion as a current narrowing structure;

wherein said ridge-shaped portion of said second cladding layer includes a first ridge-shaped layer on the side close to said active layer and having a high bandgap and a second ridge-shaped layer on the side distant from the active layer and having a low bandgap.

2. A semiconductor light emitting device as set forth in claim 1, wherein said first ridge-shaped layer and said second ridge-shaped layer are a layer with a high aluminum composition ratio and a layer with a low aluminum composition ratio, respectively.

3. A semiconductor light emitting device as set forth in claim 2, wherein

an aluminum composition ratio X1 of said first ridge-shaped layer is $0.60 \leq X1 \leq 0.70$, and

an aluminum composition ratio X2 of said second ridge-shaped layer is X2 ≤ X1.

4. A semiconductor light emitting device as set forth in claim 2, wherein

an aluminum composition ratio X1 of said first ridge-shaped layer is 0.70, and

an aluminum composition ratio X2 of said second ridge-shaped layer is 0.65.

5. A semiconductor light emitting device as set forth in claim 1, wherein a film thickness of said first ridge-shaped layer is 50 to 400 nm.

6. A semiconductor light emitting device as set forth in claim 1, wherein a sum of a film thickness of a portion excepting said ridge-shaped portion of said second cladding layer and a film thickness of said first ridge-shaped layer is 750 nm or smaller.

7. A semiconductor light emitting device as set forth in claim 1, wherein an etching stop layer is formed on a boundary face of a portion excepting the ridge-shaped portion of said second cladding layer and said first ridge-shaped layer.

8. A semiconductor light emitting device as set forth in claim 1, wherein said first cladding layer, said active layer and said second cladding layer are formed by an AlGaInP-based material.

9. A semiconductor light emitting device as set forth in claim 1, wherein said first cladding layer, said active layer and said second cladding layer are formed by an AlGaN-based material.

10. A semiconductor light emitting device as set forth in claim 1, wherein said first ridge-shaped layer is formed by a layer having an equal refractive index to that of a portion excepting said ridge-shaped portion of said second cladding layer.

11. A semiconductor light emitting device as set forth in claim 1, wherein said first ridge-shaped layer is formed by a layer having a lower refractive index than that of a portion excepting said ridge-shaped portion of said second cladding layer.

12. A semiconductor light emitting device as set forth in claim 11, wherein an aluminum composition ratio of said portion excepting said ridge-shaped portion of said second cladding layer is 0.68, and

an aluminum composition ratio of said first ridge-shaped layer is 0.75 to 0.80.

13. A method of producing a semiconductor light emitting device, including:

a step of forming at least a first conductive type first cladding layer, an active layer and a second conductive type second cladding layer by stacking on a

substrate by an epitaxial growth method; and

a step of processing a ridge-shaped portion as a current narrowing structure at a part of said second cladding layer;

wherein, in the step of forming said second cladding layer, a portion to be said ridge-shaped portion is formed to include a first ridge-shaped layer on the side close to said active layer and having a high bandgap and a second ridge-shaped layer on the side distant from the active layer and having a low bandgap.

14. A method of producing a semiconductor light emitting device as set forth in claim 13, wherein

in the step of forming said second cladding layer, a layer having a high aluminum composition ratio and a layer having a low aluminum composition ratio are formed as said first ridge-shaped layer and said second ridge-shaped layer, respectively.

15. A method of producing a semiconductor light emitting device as set forth in claim 14, wherein

in the step of forming said second cladding layer, a layer having an aluminum composition ratio X1 satisfying $0.60 \leq X1 \leq 0.70$ is formed as said first ridge-shaped layer and a layer having an aluminum composition ratio X2 of $X2 \leq X1$ as said second ridge-shaped layer.

16. A method of producing a semiconductor light emitting device as set forth in claim 14, wherein

in the step of forming said second cladding layer, a layer having an aluminum composition ratio X1 of 0.70 is formed as said first ridge-shaped layer and a layer having an aluminum composition ratio X2 of 0.65 is formed as said second ridge-shaped layer.

17. A method of producing a semiconductor light emitting device as set forth in claim 13, wherein

in the step of forming said second cladding layer, said first ridge-shaped layer is formed to have a film thickness of 50 to 400 nm.

18. A method of producing a semiconductor light emitting device as set forth in claim 13, wherein

in the step of forming said second cladding layer, a sum of a film thickness of a portion excepting said ridge-shaped portion of said second cladding layer and a film thickness of said first ridge-shaped layer is made to be 750 nm or smaller.

19. A method of producing a semiconductor light emitting device as set forth in claim 13, wherein

in the step of forming said second cladding layer, an etching stop layer is formed on a boundary face of a portion excepting said ridge-shaped portion of said second cladding layer and said first ridge-shaped layer.

20. A method of producing a semiconductor light emitting device as set forth in claim 19, wherein

in the step of processing said ridge-shaped portion as the current narrowing structure at the part of said second cladding layer, the part of said second cladding layer is processed to be said ridge-shaped portion by etching which stops at said etching stop layer.

21. A method of producing a semiconductor light emitting device as set forth in claim 13, wherein said first cladding layer, said active layer and said second cladding layer are formed by an AlGaInP-based material.

22. A method of producing a semiconductor light emitting device as set forth in claim 13, wherein said first cladding layer, said active layer and said second cladding layer are formed by an AlGaN-based material.

23. A method of producing a semiconductor light emitting device as set forth in claim 13, wherein

in the step of forming said second cladding layer, a layer having a same refractive index as that of a portion excepting said ridge-shaped portion of said second cladding layer is formed as said first ridge-shaped layer.

24. A method of producing a semiconductor light emitting device as set forth in claim 13, wherein

in the step of forming said second cladding layer,

a layer having a lower refractive index than that of a portion excepting said ridge-shaped portion of said second cladding layer is formed as said first ridge-shaped layer.

25. A method of producing a semiconductor light emitting device as set forth in claim 24, wherein

in the step of forming said second cladding layer, a layer having an aluminum composition ratio of 0.68 is formed as a portion excepting said ridge-shaped portion of said second cladding layer and a layer having an aluminum composition ratio of 0.75 to 0.80 is formed as said first ridge-shaped layer.